

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

SKYHOOK WIRELESS, INC.,

Plaintiff,

v.

GOOGLE INC.,

Defendant.

Civil Action No. 1:10-cv-11571-RWZ
Civil Action No. 1:13-cv-10153-RWZ

**GOOGLE INC.'S TRIAL BRIEF
PURSUANT TO LOCAL RULE 16.5(f)**

I. INTRODUCTION

Defendant Google Inc. (“Google”) submits this trial brief pursuant to Local Rule 16.5(f) to address certain proposed jury instructions and to request rulings on these issues before trial because the Court’s rulings will likely affect how the parties will present their evidence. In accordance with the Court’s instruction at the pre-trial conference, Google is submitting proposed pre-trial jury instructions concurrently with this trial brief and will submit proposed final jury instructions on March 9, 2015 (the first day of trial). In this brief, Google addresses the following issues:

1. Google requests a pre-instruction and final instruction explaining the Court’s summary judgment ruling that Google’s crowdsourced database does not meet the “target area” limitation in the “Driving Patents.” Because Skyhook’s remaining infringement allegation on the Driving Patents involves a period where the database included both crowdsourced and CityBlock collection data, an instruction that the crowdsourced information does not satisfy the target area limitation is necessary to avoid jury confusion and ensure that the jury does not find infringement in a manner contrary to the Court’s summary judgment ruling.

2. Google requests that the Court confirm that the Court’s construction of the term “recorded location information” in the ’897 Patent incorporates the Court’s construction of “target area.” The Court’s construction of the term “recorded location information” uses the phrase “target area,” which the Court construed separately, albeit in an identical context. Accordingly, the term “recorded location information” should incorporate the limitations in the Court’s construction of “target area.”

3. Google requests that the Court apply its summary judgment ruling regarding the crowdsourced database to the ’897 Patent. Because the ’897 Patent includes

“target area” as construed by the Court (see item 2 above), use of Google’s crowdsourced database cannot infringe the ’897 Patent for the reasons the Court set forth in its summary judgment ruling regarding the ’694 and ’657 Patents.

4. Google requests that the Court rule that Google does not infringe the ’234 Patent as a matter of law, because Google’s system does not use an “expected error” as defined by this Court’s construction. As the Court recently explained in its February 18, 2015 Order, “expected error [of a position estimate]” continues to mean “a prediction of the relative accuracy in terms of distance....” Dkt. No. 565 at 44. Google’s system cannot meet this requirement, because the accused “expected error” is merely a radius around the position estimate in which the actual position will probably be found. This type of probabilistic radius is not a distance as required by the Court’s construction. Moreover, it is mathematically and logically impossible for this type of accused error—which is not a fixed distance—to give rise to a “prediction of the relative accuracy,” because all Google’s system indicates is that the actual position will (probably) be somewhere within the defined radius.

II. ARGUMENT

A. To avoid confusion, the Court should instruct the jury that “crowdsourced” data does not satisfy the “target area” requirement.

The Court ruled on summary judgment that, as of March 2012, Google’s WiFi AP Table—which, by that time, used exclusively crowdsourced data—does not practice the “target area” limitation of the ’694 and ’657 Patents. Dkt. No. 565 at 38–40. The Court reasoned that a “target area” (*i.e.*, a “pre-identified geographic area”) must be identified “in advance of the scanning,” and that Google’s crowdsourced collection model did not pre-identify such areas. *Id.* at 39.

Google requests that the Court instruct the jury as to this ruling as follows:

Certain claims of the patents-in-suit contain a requirement of a “target area,” which I have defined as “a pre-identified geographic area.” As you have heard, one of the methods Google has used to collect information for its WiFi AP Table database is “crowdsourcing.” Generally speaking, “crowdsourcing” is a process of obtaining information by contributions from many people—in this case, users of mobile devices, such as smart phones. I have determined that Google’s crowdsourced collection model does not involve collection from a “target area.” Google’s crowdsourced collection model therefore does not infringe any claim requiring the use of a “target area.” You must accept this decision when assessing infringement for any claim that includes a “target area” requirement. This includes claim 1 of the ’694 Patent.¹ This also includes claims 1, 3, and 4, of the ’897 Patent, which includes a “target area” requirement in the definition of the term “recorded location information.”²

This instruction will prevent juror confusion and save time and should ensure that the jury does not make a finding contrary to the Court’s summary judgment order. As the Court recognized in its summary judgment order, the accused database—Google’s WiFi AP Table—had different contents at different points in time. Dkt. No. 565 at 33, n.3. Before 2008, the WiFi AP Table contained data from only CityBlock collections (*i.e.*, driving data).³ *Id.* From 2008 to 2012, the WiFi AP Table contained data from both the crowdsourced model and CityBlock collections. *Id.* And from March 2012 forward, the WiFi AP Table was completely crowdsourced. *Id.* The Court held that the post-March 2012 WiFi AP Table did not infringe. *Id.* at 39 (“Google’s motion is granted with respect to its crowdsourced-only database.”). Absent a clear instruction, this complicated set of facts (along with the large number of patents and claims at issue in this case) is likely to confuse a jury. Moreover, Google should not have to spend trial time convincing the jury that a crowdsourced collection model does not satisfy a “target area”

¹ Earlier today, Google and Skyhook entered into an agreement, the result of which is that Skyhook will not be asserting the ’657 patent at trial. Accordingly, Google omits mention of the ’657 patent from this instruction.

² The final sentence reflects that, as discussed in argument B below, the “target area” limitation also applies to all asserted claims of the ’897 Patent.

³ Because the first patent in suit, the ’694 Patent, did not issue until October 7, 2008, the composition of Google’s database(s) before that date is not directly relevant to infringement.

requirement. Finally, withholding the instruction poses the risk that the jury will incorrectly find infringement based on crowdsourced data.

B. The '897 Patent claims include the “target area” limitation as construed by the Court.

The claims of '897 Patent also contain a “target area” requirement. In all the asserted claims of the '897 Patent, the database must contain “recorded location information,” which this Court has construed to require a “target area”:

Estimated physical location(s) of Wi-Fi access points calculated using characteristics of signals transmitted by such Wi-Fi access points, which Wi-Fi access points have been collected systematically, *i.e.*, in a manner in which all the streets in a target area are covered.

Dkt. No. 96 at 14 (common construction of “recorded location information,” “calculated position information,” and related “location” terms) (emphasis added). Thus, all of the asserted claims of the '897 Patent incorporate the “target area” requirement. This Court has held that crowdsourcing does not meet the “target area” requirement in the related '657 and '694 Patents.

Dkt. No. 565 at 38–40.

As a threshold matter, the Court’s claim construction order, the parties, and the patents themselves are all in accord that the '897 patent should be interpreted consistently with the other driving patents. The Court analyzed the “location” terms in the '897, '694, '657, and '245 patents together, and noted with regard to these patents that “claim terms are to be construed consistently across patents of common ancestry.” Dkt. No. 96 at 14 (citing *Abotx, Inc. v. Exitron Corp.*, 131 F.3d 1009, 1010 (Fed. Cir. 1997)). The Court also recognized that the parties each provided a single analysis for this set of terms. *Id.* at n. 1. Finally, the Court recognized that the '897 patent itself equates the term “recorded location information” (which is specific to the '897

patent's claims) with "calculated location [information]," which is the term used in the '694 patent's claims. *Id.* at n. 2.

As the Court's claim-construction order makes clear, the "target area" in the construction of "calculated position information" and "recorded location information" is the same "target area" recited in the claims of the related '694 and '657 Patents. First, in determining that the "target area" recited directly in the claims must be "pre-identified," the Court relied on and cited to the specification of the '988 Patent (which is no longer at issue but shares a specification with the '694 Patent, *id.* at 2, n.2). Namely, the Court quoted the specification's description of "a fleet of scanning vehicles which 'follow a programmatic route through target scan areas to gather data in the most optimal fashion producing the highest quality data. The target scan areas typically represent a large metropolitan area.'" *Id.* at 8 (quoting '988 Patent, col. 7, lns. 37–46).

Then, in construing the terms "calculated position information" and "recorded location information" to require "systematic[]" collection of WiFi AP data—"i.e., in a manner in which all the streets in a target area are covered," *id.* at 15–16, the Court cited to a later portion of the same discussion in the specification. Specifically, the Court noted that the specification described "a [collection] model that 'include[s] every single street in the target area so as to avoid arterial bias in the resulting collection of data thus producing a more reliable positioning system for the end users.'" *Id.* at 15 (quoting '988 Patent, col. 8, lns. 28–31). Thus "**the** target area" that the Court cited in construing "recorded location information" and ultimately included in its construction refers back to the "the target scan areas" that the Court cited in construing "target area." *See id.* at 14 (citing *Abtox, Inc. v. Exitron Corp.*, 131 F.3d 1009, 1010 (Fed. Cir. 1997), for the proposition that that "claim terms are to be construed consistently among patents of common ancestry").

Unsurprisingly given the Court’s claim-construction ruling, Skyhook’s technical expert, Mr. James Geier, also treated the “target area” in the construction of “calculated position information” and “recorded location information” as identical to the “target area” recited directly in the claims. In offering his infringement opinion for the ’897 Patent, Mr. Geier referred to his opinion “for the 694 and 657 Patents [that] the location information in Google’s AP reference databases” was “calculated using characteristics of signals transmitted by . . . Wi-Fi access points” that “had been collected systematically in a manner in which all the streets in a target area are covered.” Geier Rep. App. C ¶ 35. Mr. Geier then explicitly “incorporate[d]” those opinions into his analysis of the ’897 Patent. *Id.*

Accordingly, the jury should be instructed that the Court’s ruling that the “target area” requirement in the construction of “recorded location information” in the ’897 Patent is the same as the “pre-identified geographic area” that the Court has otherwise construed “target area” to mean.

C. As a matter of law, use of Google’s crowdsourced database does not infringe the ’897 Patent because it does not meet the “target area” limitation.

If, as just explained, the ’897 Patent includes the “target area” limitation as construed by the Court, then use of Google’s crowdsourced database cannot infringe the asserted claims of the ’897 Patent, for the reasons stated in the Court’s summary judgment ruling. Dkt. No. 565 at 38–40. Furthermore, a pretrial ruling on this issue is appropriate. First, as the Court noted in granting summary judgment of definiteness to Skyhook, the Court may grant summary judgment *sua sponte*—particularly where, as here, Google moved for summary judgment on the issue and Skyhook had an opportunity to respond. Dkt. No. 565, at 8, n.6. Second, a ruling before trial will foster fairness and judicial efficiency, as both Skyhook and Google can tailor their evidentiary presentations accordingly.

D. The Court should find as a matter of law that Google cannot infringe the '234 Patent, because the accused “expected error” cannot “predict[] the relative accuracy [of the position estimate] in terms of distance.”

Google’s accused systems cannot, as a matter of law, meet the “expected error” limitation in the ’234 Patent because the accused expected error cannot “predict” the “relative accuracy” of the position estimate to which the expected error relates. The expected error that Skyhook accuses—for both the accused MaxLRE and Circle Intersection algorithms—is a circular area around the position estimate defined by a *radius*; the accused Google system estimates that the actual position is probably (but not necessarily) *somewhere* within the radius around the position estimate. But the Court’s construction requires, *at a minimum*, that the expected error *can be used* to predict *relative accuracy*, where that relative accuracy is the ratio between two distances: (i) the distance between the position estimate and the actual position (*i.e.*, the numerator) and (ii) the distance between a reference point and the actual position (*i.e.*, the denominator). Dkt. No. 526 at 4. No such prediction is possible in Google’s system: the radius that Google calculates is not the estimated “expected error” as defined by the Court, *i.e.*, the distance between the position estimate and the actual position, but instead is the probabilistic outer boundary of the geographic region within which the device is likely to be found. This probable outer boundary bears no relationship to the ’234 Patent’s concept of relative accuracy. Even if the radius that Google’s system calculates could somehow be construed to provide the *numerator* in the relative accuracy determination—that is, a specific distance between the actual and estimated positions—it would still be impossible to know or even understand the denominator in the relative accuracy determination, because the distance between a reference location and a point somewhere inside a circle is an unknowable, varying, and indeterminate number. For that reason, the accused expected error cannot predict relative accuracy as construed by the Court.

1. The Court’s construction requires that expected error (i) is the

**distance between the position estimate and the actual position and (ii)
predict a constant relationship to a reference distance**

The Court’s construction of expected error requires that the expected error can be used to predict the relative accuracy of a position estimate. The Court’s January 23, 2015 construction of relative accuracy, in turn, is a ratio between two distances—the measurement error (*i.e.* distance between the position estimate and the actual position) and a reference distance (*i.e.* distance between a reference point and the actual position). Dkt. No. 526 at 5. For the Court’s convenience, the constructions of both expected error and relative accuracy are provided below:

Term	Construction
“expected error [of a position estimate]”	“a prediction of the relative accuracy in terms of distance, based on characteristics of the at least one access point used to estimate the position of the WLAN-enabled device.” <i>See Dkt. No. 565 at 44 (citing Dkt. No. 339 at 12–13).</i>
“relative accuracy of the position estimate in terms of distance”	“the distance between the position estimate and the actual position, divided by the distance between a reference point and the actual position.” <i>See id.</i> (citing Dkt. No. 526 at 4).

The “expected error” element of the asserted claims requires more than a calculated probability that the actual position is within some distance of the position estimate, because as the Court acknowledged, Skyhook amended the claims of the ’234 patent to overcome the disclosure of probability-based expected error in the prior art. *Id.* at 47–48. Rather, according to the Court’s orders, “the expected error is the expected distance between the position estimate and the actual position.” Dkt. No. 526 at 6; *see* Dkt. No. 565 at 45–46.

Moreover, the Court has stated that by “predicting” relative accuracy, the expected error must indicate some constant relationship, such that the ratio between the distances varies in a predictable way with the expected error. Dkt. No. 526 at 9, n.10. Thus, under the Court’s construction, expected error must, *at a minimum*, provide some prediction regarding the

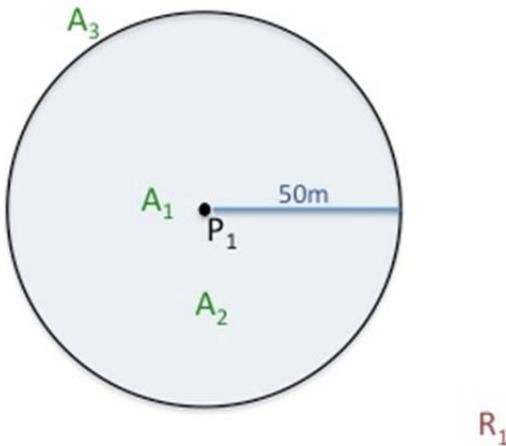
following ratio (*i.e.*, relative accuracy): $\frac{D_{P-A}}{D_{R-A}}$

2. Because it does not provide any prediction regarding relative accuracy, the accused expected error cannot meet the requirements of the '234 Patent

Undisputedly, Google's accused system provides only a radius around the position estimate in which the actual position of the device is expected to be. Dkt. Nos. 505 (Google's Mot. for Summ. J. of Non-Infringement of the '234 Patent (filed under seal)) at 4–5, 480 (Skyhook's Opp'n to Google's Mot. for Summ. J. of Non-Infringement of the '234 Patent (filed under seal)) at 3–4. *See id.* The actual position could be anywhere within that radius (or occasionally outside of it), including at the exact same location as the position estimate of the device. Although Skyhook accuses this radius as the “expected error” of the position estimate, this measurement is not the “expected distance between the position estimate and the actual position” that would provide a fixed numerical input for determining the relative accuracy of the position estimate. Instead, the accused radius defines a probable outer boundary of the geographic region within which the device is likely to be found.

For example, the speed limit of a highway defines a probable outer boundary for the traveling speed of vehicles on that highway. If the speed limit of the Massachusetts Turnpike is 65 miles per hour, in most cases, a car on that highway can be expected to be traveling within that speed. But the speed limit of the Pike tells us nothing about—and bears little connection to—the expected error of the estimated speed of any particular car driving down the Pike. For instance, if the *estimated speed* of a vehicle driving down the Massachusetts Turnpike is 25 miles per hour (mph), and its *actual speed* is 20 mph, the *estimated error* of the speed estimate would be 5 mph—not the speed limit of 65 mph. The speed limit may provide some rough upper bound on the estimated error, but as with the accused Google-provided radius, it would not provide the estimated error itself as construed by the Court.

The following simplified diagram is further illustrative:



In this example, for device position estimate P_1 , Google provides a radius measurement of 50m, which defines the boundary within which the actual position of the device is expected to be found. But the actual position of the device may be in any location within that area, such as at A_1 (where the expected error D_{P1-A1} would be roughly 15m) or A_2 (where the expected error D_{P1-A2} would be roughly 25m), or even outside the area, such as at A_3 (where the expected error D_{P1-A3} would be roughly 55m). The corresponding reference distance would also change according to the actual position of the device, resulting in different relative accuracy values for the *same provided position estimate P_1 and radius of 50m*.

Indeed, in Google's system, relative accuracy (as defined under the Court's construction) can vary widely depending on the relative directional positions of the actual position, the position estimate, and the reference point, *with no constant relationship to the radius of expected error around the position estimate*. Thus, unlike the examples provided by the Court in its claim construction order, the radius value that Google's system produces cannot provide any prediction of relative accuracy—where the reference distance is between an unknown actual position and an unknown reference point. As explained above, the accused radius in Google's system does not provide an estimate of a specific distance between the actual and estimated positions—it provides only a measurement of the radius of a geographic region within there is some

probability that the actual position exists. This is not the “expected error” *numerator* in the relative accuracy equation provided for by the Court’s construction. Even if the accused radius could somehow be construed to provide that *numerator*, the *denominator* in the relative accuracy equation (*i.e.*, the distance between a reference point and the actual position) would vary dramatically, with no determinate or determinable value. In the diagram above, the reference distance could be D_{R1-A1} , D_{R1-A2} , D_{R1-A3} , or any number of potential reference distances for any given A_x actual position within the radius of 50m. Even given a fixed reference point, the actual position can be anywhere inside the radius. Accordingly, the denominator can vary infinitely with no relationship to value of the radius measurement used as the numerator, and that measurement then provides no prediction of the equation’s result. For this reason, the accused radius could not predict relative accuracy, even if provided a constant value, rather than a probabilistic region. Thus, as a matter of law, the accused system cannot satisfy this construction.

Because the accused estimated error calculation cannot predict relative accuracy, Google does not meet this limitation and is entitled to summary judgment of non-infringement as to the ’234 Patent under the Court’s revised constructions.

III. CONCLUSION

Google respectfully requests that the jury be instructed as described above.

Respectfully submitted,

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By: /s/ Asim M. Bhansali
 Robert Van Nest (*pro hac vice*)
 Asim M. Bhansali (*pro hac vice*)
 Rachael E. Meny (*pro hac vice*)
 Matthias A. Kamber (*pro hac vice*)
 KEKER & VAN NEST LLP
 633 Battery Street

San Francisco, CA 94111-1809
Tel: 415 391 5400
Fax: 415 397 7188
Email: rvannest@kvn.com
abhangsali@kvn.com
rmeny@kvn.com
mkamber@kvn.com

William F. Abrams (*pro hac vice*)
Sanjeet Dutta (*pro hac vice*)
STEPTOE & JOHNSON, LLP
1001 Page Mill Road
Building 4, Suite 150
Palo Alto, CA 94304-1036
Tel: (650) 687-9500
Fax: (650) 687-9499
Email: wabrams@steptoe.com
sdutta@steptoe.com

Boyd Cloern (*pro hac vice*)
STEPTOE & JOHNSON, LLP
1330 Connecticut Avenue, NW
Washington, DC 20036
Tel: (202) 429-6230
Fax: (202) 429-3902
Email: bcloern@steptoe.com

James D. Smeallie
Benjamin M. Stern
HOLLAND & KNIGHT
10 St. James Avenue, 11th Floor
Boston, MA 02116
Tel: (617) 523-2700
Fax: (617) 523-6850
Email: jd.smeallie@hklaw.com
benjamin.stern@hklaw.com

Attorneys for Defendant GOOGLE INC.

CERTIFICATE OF SERVICE

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/s/ Asim M. Bhansali
Asim M. Bhansali (*pro hac vice*)
KEKER & VAN NEST LLP
633 Battery Street
San Francisco, CA 94111-1809
Tel: 415 391 5400
Fax: 415 397 7188
Email: abhansali@kvn.com